An anionic binuclear complex of tungsten(II), $[(\mu\text{-}Cl)_3\{W(SnCl_3)(CO)_3\}_2]^-$, and its reactivity towards norbornene.

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Streszczenie

An anionic binuclear complex of tungsten(II), $[(\mu\text{-}Cl)_3\{W(SnCl_3)(CO)_3\}_2]^-$ (**1**$^-$), containing the protonated piperidine molecule $[Hpip]^+$ as the counter ion, has been obtained during crystallization of the product from reaction between $[W(CO)_4(pip)_2]$ and $SnCl_4$ in dichloromethane solution, and its molecular structure has been elucidated by single-crystal X-ray diffraction studies. The chemical properties of complex **1** were investigated by IR and NMR spectroscopy in solution and its catalytic activity was checked in reaction with norbornene (NBE). In the presence of complex **1**, NBE transformed to a new olefin, 2,2′-binorbornylidene with ca. 50% yield in dichloromethane solution. The spectroscopic characteristics of complex **1**$^-$ were compared with those of the reinvestigated analogue compound $[(\mu\text{-}Cl)_3W_2(SnCl_3)(CO)_7]$ (**2**). The ^{119}Sn and ^{13}C NMR data indicated that in dichloromethane solution complex **2** transformed to the ionic complex **1**$^-$.

Słowa kluczowe

Tungsten(II), Stannyl ligand, Heterobimetallic complex, X-ray crystal structure, Catalytic activity, Olefin dimerization, Carbene formation

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